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PLANT BASED GALACTOGOGUES IN AYURVEDA: A PROMISING MOVE TOWARDS DRUG DEVELOPMENT

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ABSTRACT

The importance of Breast feeding has been acknowledged by Indians since antiquity and recognized importance of certain medicinal plants for augmentation of Breast milk. Detailed descriptions concerning the physiology of milk formation and ejection, diseases interfering the quality, quantity breast milk and their management are embodied in Ayurvedic literatures. Explication of the bygone knowledge about plant drugs indicated for their Galactogogue effect scattered elsewhere in ancient and medieval Ayurvedic literature is pivotal for further research and drug development. For rational and evidence based use and development of safe, effective and acceptable pharmacological dosage forms, it is essential to understand the mode of action of these plant drugs based on their traditional use, principles mentioned in Ayurveda texts and also by applying contemporary pharmacological thoughts.

KEYWORDS: Breast milk, augmentation, galactogogue, Ayurveda, medicinal plants.

INTRODUCTION

The references regarding the benefits of Breast feeding can be traced aged back from codified texts of Ayurveda, well documented and practiced since ancient times in India. Signifying the ancient Sanskrit saying '*matureva pibyatstanynam*'(recommending breast feeding as the first choice) nature has provided all the vital requirement of an infant in the form of breast milk which is a universally recognized nutritionally and immunologically superior than any other substitutes. There are several advantages of breast feeding to the infants *viz*. it provides

proper nutrition, complies fat demand of baby, lactose and protein content and other vitamins and minerals etc. Breast milk also has a protective role against infections, apart from this, nursing provides benefit to the mother too such as: it lowers the risk of long term osteoporosis and premenopausal breast cancer and inhibits ovulation, in that way exerting contraceptive effect and fastens the return to pre-partum state. For the proper nourishment of her baby significant changes occur in the body of a woman *viz*. Mammogenesis (preparation of breasts begin during pregnancy), Lactogenesis (synthesis and secretion of milk occurs due to high prolactin and fall in oestrogen and progesterone after delivery of placenta), Galactokinesis (a centrally mediated reflex of milk let down), Galactopoiesis (maintenance of lactation and depends on frequent suckling of breast by infant). The hormones responsible for mammogenesis or lactogenesis are cortisol, growth hormone, thyroxine and insulin **[1]**. Still there is a possibility of the absence of proper lactation due to several causes such as non initiation by early suckling, complete failure (agalactia) or very less breast milk, which is a very serious issue for the nutritional and safety point of view of the baby. In the cases of lactation failure due to non- initiation by early suckling, then it can be restored by counseling, good nutrition, rest and frequent suckling in 70% of the cases. However in the condition of agalactia or very less breast milk, the requirement of the galactogogues arises. Ayurveda could possibly offer safe and effective approaches for the augmentation of Breast milk owing to its rich source of medicinal flora attributed with galactogogue properties.

PHYSIOLOGY OF BREAST MILK: AN INTERDISCIPLINARY UNDERSTANDING

The glandular tissue is responsible for production of milk and the fat and supporting tissue is responsible for the size of the breast; hence a mother can produce enough milk despite small size of the breast.[2] Ayurvedic classics of ancient and medieval period such as *Charaka samhita,*[15] *Susrut samhita,*[3, 4] *Astanga hridaya.*[8] *Bhavaprakasha,*[5] *Kashyap samhita***[7]**,, *Harita samhita, Yoga ratnakara Bhela samhita,*[16] and commentaries of *Dalhana* on *Susrut samhita,*[9] recount about physiology of milk formation relating to different body tissues (*dhatus*). Further in different contexts these texts attribute the formation of breast milk to *kapha dosha* (nutritional and immunological attributes), *rasa dhatu* (circulating nutritional essence-end product of digestion).[3-20] The breast milk composition varies at different stages after birth as per the requirements of the baby. The milk secreted during the initial 3-4 days after delivery is known as Colostrum. It is yellow, thick and contains more antibodies and cells and increased amounts of vitamins A, D, E and K which is very clear as they are the fat soluble vitamins. After 3-4 days until two weeks the milk secreted is known as Transitional

milk, the composition of milk changes and there is a decline in the immunoglobulin and protein content while the fat and sugar content increases. Transitional milk is followed by mature milk which is watery, thinner and full of nutrients essential for optimal growth of the baby. For optimum growth, the baby needs both fore and hind milk. The baby should, therefore, be allowed to empty a breast completely before switching over to the other breast.[2] According to Ayurveda, the breast milk possess cold and sweet, leaving and astringent tastes, light, appetizing, invigorating, vitalizing, nourishing, wholesome and acts as a good wash in eye diseases. As an inhalation, it is useful for *raktapitta* (hemorrhagic diseases) and soothing for persons having pain in eyes.[21, 22] *Susruta* describes the characters of normal breast milk as sweet in taste, whitish yellow resembling the colour of a conch shell, cold and free from impurities. It exempts discoloration and mixes evenly with water, neither produces froth nor threads, neither floats or settles down.[23, 24] *Carak* attributes normalcy of colour, smell, taste and touch to the pure milk.[25] In addition to the above mentioned properties, *Vagbhata* added that it should not be vitiated by any pathological factors.[26, 27] *Kashyapa* said that the pure milk provides unobstructed, easy and good growth of strength, different body parts, longevity as well as good health of the child and does not cause any pain or trouble to the child and wet nurse.[28] Ayurveda emphasizes on breastfeeding and advocates feeding mother's milk as the first choice. In the absence of breast milk, it further advocates breast feeding from alternate source other than mother *i.e*. *Dhatri*. Further, when no such sources of human milk are available, feeding of cow's or goat's milk is mentioned as alternate choice.[29] Strikingly, many galactogogues are obtained from plants containing a milky sap. This fact reminds of the medieval "Doctrine of Signatures" by Paracelsus, according to which the plants possess signs that indicate their use. Though this doctrine cannot be scientifically validated, there are indeed several latex–producing plant species that are stated to be quite efficient in promoting lactation.[30]

The physiology of breast milk secretion comprises the reflexes in the mother and the reflexes in the baby. The reflexes of the mother reckon in the prolactin reflex responsible for secretion of milk (sucking of the baby stimulates the nerve ending in the nipple which carries message to the anterior pituitary making it release prolactin which acts on the alveolar glands in the breast to stimulate milk secretion) and the oxytocin reflex responsible for ejection of the milk (stimulation to the nerve endings in the nipple by suckling as well as the thought, sight, or sound of the baby stimulates the production of oxytocin from the posterior pituitary thereby causing contraction of the milk from the glands into the lactiferous sinuses and the lactiferous

ducts. *Susruta* explains that the ejection of milk is triggered and induced by thought, sight, or sound of the baby and by thought, sight, or sound of the woman .Uninterrupted affection for the child is the main factor for this purpose which simulates the oxytocin reflex.[31, 32] *Harita* said that channels (*srotasas)* of the woman get cleared due to force exerted during bearing down efforts resulting in sudden milk ejection, however this milk should be discarded as it is thick due to dominance of *kapha.*[33] The reflexes of the baby include the rooting reflex, the suckling reflex and the swallowing reflex. In Ayurveda, this concept of the baby reflex has been beautifully sculptured as a function of *Budhi vaisheshika alochaka pitta* –a neuro-hormonal factor which is responsible for all the higher mental functions of the body and in the new born it induces the desire and technique of sucking.

Besides various disorders influencing the quality of breast milk (*stanya dusti*), Ayurveda describes other important conditions related its quantity such as *stanya nasha* or*stanyakshaya* indicating the poor or no lactation and *stanyavriddhi* denoting excessive production.[35-37]

NEED FOR DEVELOPMENT OF SAFE AND EFFECTIVE APPROCHES FOR AUGUMENTATION OF BREASTMILK

Most commonly used galactogogues for human use are metoclopromide, domperidone, chlorpromazine and sulpride; it was observed that they show remarkable side effects in mothers like gastrointestinal disorders, xerostomia (dry mouth syndrome or hyposalivation), cardiac arrhythmia, lethargy, sedation, extra pyramidal symptoms such as hypertension, tremor, tic, facial seborrhea and hyperhidrosis and even sudden death. In infants the symptoms due to ingested milk from treated mothers include intestinal discomfort, lethargy and sedation.[38] The main galactogogues used in cattle is rBST which has reported adverse health effects that directly affect animal welfare.[39-41] Herbal preparations are known to increase milk production significantly in women, goats, cows and other species. This research area is very important for human breastfeeding medicine and in veterinary dairy industry,[42-46] Dopamine antagonists, such as antiemetic metoclopramide and domperidone and antipsychotics sulpride and chlorpromazine are mainly used among synthetic molecules to increase lactation, the hormone synthetic analogs such as oxytocin, rBST, TRH and medroxyprogesterone are also used as synthetic galactogogues.

Metoclopramide

The first reported use as galactogogues was in 1975[47] and has been evaluated in many clinical trials.[48] In humans undesirable effects have been reported in mothers such as

anxiety, gastrointestinal disorders and insomnia,[38] severe depression and seizures and in infants that consume milk from treated mothers cause intestinal discomfort.[38]

Domperidone

Its first use as galactogogues was reported in 1983.[49] It was used to increase milk production in mothers of premature infants,[50] but it was not approved by the food and drug administration (FDA) in USA and domperidone use in human clinical trials has not been associated with adverse effects in infants, but in mothers it was associated with xerostomia, gastrointestinal disorders, cardiac arrhythmia and sudden death and this should be taken into account in veterinary practices.[38]

Considering the limitation of certain synthetic agents for augmentation of breast milk it is imperative to develop safe and effective alternate agents preferably from plant source. Ayurveda enumerate a number of such medicinal plants for augmentation of breast milk.

GALACTOGOGUES IN AYURVEDA

Classical literatures of Ayurveda describe the utilization of several drugs as galactogogues with their diverse properties. A critical evaluation has been done from these literatures and it was observed that mainly 32 medicinal plants are used as galactogogues (**Table 1**).

Table 1: Medicinal plants indicated for augmentation of Brest milk in Ayurveda texts

S. No	Sanskrit Name	Botanical Source Family	Rasa	Guna	Veerya	Vipaka	Specific terminolo-gies in Ayurveda	Reference
1.	Nala	*Arundo donax* L. (Poaceae)	Madhura, Kashaya, Tikta	Laghu, Snigdha	Sheeta	Madhura	Stanyajanan	**[51]**
2.	Rohisha	*Cymbopogon martini* (Roxb.)Wats (Poaceae)	Katu, Tikta	Laghu, Ruksha, Tikshna	Ushna	Katu	Stanyajanan	**[52-53]**
3.	Veerana	*Vetiveria zizaniodes* (L.) Nash (Poaceae)	Tikta, Madhura	Ruksha, Laghu	Sheeta	Katu	Stanyajanan Kseerjanana	**[54-56]**
4.	Shali	*Oryza sativa* L. (Poaceae)	Madhura, Kashaya	Snigdh Laghu	Sheeta	Madhura	Stanyajanan Kseerjanana	**[54-55, 57]**
5.	Darbha	*Imperata cylindrical* (L.) Beauv. (Poaceae)	Madhura, Kashaya	Laghu, Snigdha	Sheeta	Madhura	Stanyajanan Kseerjanana	**[54,55,58]**
6.	Kusha	*Desmostachya bipinnata* (L.) Stapf. (Poaceae)	Madhura, Kashaya	Laghu, Snigdha	sheeta	Madhura	Stanyajanan Kseerjanana	**[54, 55,59]**
7.	Kasha	*Saccharum spontaneum* L. (Poaceae)	Madhura, Kashaya	Laghu, Snigdha	Sheeta	Madhura	Stanyajanan Kseerjanana	**[54, 55,60]**
8.	Gundra	*Typha australis* Schum & Thonn. (Typhaceae)	Kashaya, Madhura	Guru	Sheeta	Madhura	Stanyajanan Kseerjanana	**[54,55,61]**
9.	Itkata	*Sesbania bispinosa* (Jacq.) W.Wight.	Madhura	Snigdha Guru	Sheeta	Madhura	Stanyajanan Kseerjanana	**[54,55,62]**

		(Fabaceae)						
10.	Kattrina-mula	*Cymbopogon citrates* (DC.) Stapf. (Poaceae)	Katu, Tikta	Tikshna, Laghu, Ruksha	Ushna	Katu	Stanyajanan	**[54,55,63]**
11.	Ksheer Kakoli	*Lilium polyphyllum* D.Don (Liliaceae)	Madhura	Guru, Sheeta	Sheeta	Madhura	Stanyakara	**[64-66]**
12.	Kakoli	*Fritillaria roylei Hook.* Liliaceae	Madhura	Guru, Snigdha	Sheeta	Madhura	Stanyakara	**[64,65,67]**
13.	Jeevaka	*Malaxis acuminata* D. Don. (Orchidaceae)	Madhura	Snigdha Pichchila	Sheeta	Madhura	Stanyakara	**[64,65,68]**
14.	Mudgapa -rni	*Vigna trilobata* (L.) Verdc.(Fabaceae)	Tikta, Madhura	Laghu, Ruksha	Sheeta	Madhura	Stanyakara	**[64,65,69]**
15.	Mashapa - rni	*Teramnus labialis* (L.f.) Spreng. (Fabaceae)	Tikta, Madhura	Laghu, Ruksha	Sheeta	Madhura	Stanyakara	**[64,65,70]**
16.	Meda	*Litsea glutinosa* (Lour.) C.B.Rob (Lauraceae)	Katu, Tikta, Kashaya	Laghu, Snigdha	Ushna	Katu	Stanyakara	**[64,65,71]**
17.	Mahame da	*Polygonatum cirrhifolium* Royle, (Liliaceae)	Madhura	Guru, Snigdha	Sheeta	Madhura	Stanyakara	**[64,65,72]**
18.	Guduchi	*Tinospora cordifolia* (willd.) Miers. (Menispermaceae)	Tikta, Kashaya	Laghu	Ushna	Madhura	Stanyakara	**[64,65,73]**
19.	Kakata-shringi	*Pistacia chinensis* Bunge (Anacardiaceae)	Kashaya, Tikta	Guru	Ushna	Katu	Stanyakara	**[64,65,74]**
20.	Tuga	*Bambusa arundinacea* Willd. (Poaceae)	Madhura, Kashaya	Ruksha, Laghu, Tikshna	Sheeta	Madhura	Stanyakara	**[64,65]**
21.	Padmaka	*Prunus cerasoides* Buch.-Ham. ex D.Don. (Rosaceae)	Kashaya, Tikta	Laghu	Sheeta	Katu	Stanyakara	**[64,65,75]**
22.	Riddhi	*Habenaria intermedia* D. Don, (Orchidaceae)	Madhura	Guru, Snigdh, Pichchila	Sheeta	Madhura	Stanyakara	**[64,65,76]**
23.	Mridvee ka	*Vitis vinifera* L. (Vitaceae)	Madhura, Kashaya	Guru, Sara, Snigdha	Sheeta	Madhura	Stanyakara	**[64, 77]**
24.	Jeevanti	*Leptadenia reticulate* W.&A. (Asclepiadaceae)	Madhura	Laghu, Snigdha	Sheeta	Madhura	Stanyakara	**[64,65,78]**
25.	Yashti-madhu	*Glycyrrhiza glabra* L. (Leguminosae)	Madhura	Guru, Snigdha	Sheeta	Madhura	Stanyakara Ksheerajana-na	**[64,65,79, 80]**
26.	Yava	*Hordeum vulgare* L. (Poaceae)	Kashaya, Madhura	Ruksha, Guru, Pichchil, Mridu	Sheeta	Katu	Ksheerajana-na	**[79,81]**
27.	Lashuna	*Allium sativum* L. (Liliaceae)	Madhura, Lavana, Tikta, Katu, Kashaya	Guru, Snigdh, Tikshna, Sara, Pichchila	Ushna	Katu	Ksheerajanan a	**[79,82]**
28.	Kasheruk a	*Scirpus kysoor* Roxb. (Cyperaceae)	Madhura, Kashaya	Guru , Ruksha	Sheeta	Madhura	Ksheerajanan a	**[79,83]**
29.	Shringa-taka	*Trapa natans* L. (Trapaceae)	Madhura, Kashaya	Guru	Sheeta	Madhura	Ksheerajanan a	**[79,84]**
30.	Bisa	*Nelumbo nucifera*	Tikta,	Guru,	Sheeta	Madhura	Ksheerajanan	**[79,85]**

	(Kamala Naala)	Gaertn. (Nymphaeaceae)	Madhura, Kashaya, Katu, Lavana	Ruksha			a	
31.	Vidari-kanda	*Pueraria tuberosa* (Willd.) DC. (Fabaceae)	Madhura	Guru, Snigdha	Sheeta	Madhura	Ksheerajanan a	**[79,86]**
32.	Shatavari	*Asparagus racemosus* Willd. (Liliaceae)	Madhura, Tikta	Guru, Snigdha	Sheeta	Madhura	Ksheerajanan a	**[79,87]**

AYURVEDIC PHARMACOLOGICAL PROFILE

Extensive literature concerned about the Ayurvedic pharmacological principles of 32 plants indicated for augmentation of breast milk were studied for various aspects *viz*. *Rasa* (Taste), *Guna* (Bio-physical property), *Virya* (Active principle/potency), *Vipaka* (Product of bio transformation/Drug-Receptor complex) and *Dosha karma* (Action on doshas) revealed some of the interesting specifics such as among 63 component *Rasa* of 32 plants, 26 plants (41.3%) possess *Madhura* rasa, 2 (3.2%) *Lavana* rasa, 5 (7.9%) *Katu* rasa, 13 (20.6%) Tikta rasa and 17 (27%) plants possess *Kashaya* rasa. **(Table-2)**

Table-2: Distribution of 63 *Rasa* components of 32 Plants used for Galactogogue effect

S. No	Rasa	Number of plants	Percentage (%)
1.	*Madhura*	26	41.3
2.	*Kasaya*	17	27
3.	*Tikta*	13	20.6
4.	*Katu*	5	7.9
5.	*Lavana*	2	3.2

Out of 69 components Guna of 32 plants, 15 plants (21.7%) possess Laghu guna, 16 (23.1%) Guru Guna, 17 (24.6%) Snigdha Guna, 9 (13%) Ruksha Guna, 4 (5.7%) plants possess Tikshna Guna, 4(5.7%) Pichchila Guna, 2 (2.9%) Sara Guna, 1 (1.4%) Sheeta Guna and 1 (1.4%) Mridu Guna. (**Table-3**)

Table-3: Distribution of 69 component Guna of 32 Plants used for Galactogogue effect

S. No	Guna	Number Of Plants	Percentage (%)
1.	*Laghu*	15	21.7
2.	*Guru*	16	23.1
3.	*Snigdha*	17	24.6
4.	*Ruksha*	9	13
5.	*Pichchila*	4	5.7
6.	*Tikshna*	4	5.7
7.	*Sara*	2	2.9
8.	*Sheeta*	1	1.4
9.	*Mridu*	1	1.4

Out of 32 components *Virya* of 32 plants, 26 plants (81.2%) possess *Sita virya* while 6 (18.8%) plants possess *Ushnavirya*. (**Table-4**).

Table-4: Distribution of 32 components *Virya* of 32 Plants indicated for Galactogogue effect

S. No	Virya	Number of Plants	Percentage (%)
	Sita	26	81.2
	Ushna	6	18.8

Out of 32 component *Vipaka* of 24 plants (75%) possess *Madhura* vipaka and 8 (25%) *Katu* vipaka (**Table-5)**

Table-5: Distribution of 32 components *Vipaka* of 32 Plants indicated for Galactogogue effect

S. No	Vipaka	Number of Plants	Percentage (%)
1.	*Madhura*	24	75
2.	*Katu*	8	25

The dominating principles of the attributes *viz*. *Rasa*, *Guna*, *Virya*, and *Vipaka* ascribed to these plants, include *Madhura rasa* -26 (41.3%) out of 63 component of rasa, Snigdha Guna-17 (24.6%) out of 69 component of *Guna*, *Sita*, *Virya* -26(81.2%) out of *32* components of *Virya* and *Madhura Vipaka* - 24 (75%) out of *32* component *Vipaka*.(**Table- 6**).

Table-6: Distribution of Dominating attributes among 32 Plants indicated for Galactogogue effect

S.No	Attributes	Distribution	Percentage (%)
1.	*Madhura rasa*	26 (of 63 component Rasa)	**41.3**
2.	*Snigdha Guna*	17 (of 69 component Guna)	**24.6**
3	*Sheeta Virya*	26 (of 32 component Virya)	**81.2**
4	*MadhuraVipaka*	24 (of 32 component Vipaka*)*	**75**

ACTION ON KAPHA DOSHA: THE GALACTOGOGUE FACTOR

An insight into effect of dominating attributes among 32 plants designated for the augmentation of breast milk on *Kapha dosha* -the factor attributed for increasing the milk revealed that all the factors ascribed with *Kapha vardhaka* action *i.e.* increased of *Kapha dosha*) (**Table -7**).[88]

Table-7: Effect of dominating attributes of 32 Plants indicated for galactogogue effect on *Kapha dosha*

S.No.	Attributes	Effect on kapha dosha
1.	*Madhura rasa*	*Kapha vardhaka* (increases Kapha)
2.	*Snigdha Guna*	*Kapha vardhaka* (increases Kapha)
3.	*Guru Guna*	*Kapha vardhaka* (increases Kapha)
4.	*Laghu Guna*	*Kaphahara* (alleviates Kapha) (Guna of breast milk)
5.	*Sheeta Virya*	*Kapha vardhaka* (increases Kapha)
6.	*Madhura Vipaka*	*Kapha vardhaka* (increases Kapha)

AYURVEDIC PATHOPHYSIOLOGICAL UNDERSTANDING OF MODE OF ACTION

Classical excerptions on galactogogue action are authentic evidences (*Aptopadesha*) which could be explained in light of Ayurvedic pharmacological and patho-physiological principles to understand the mode of action. Ayurvedic texts quoted the use of *Kapha vardhaka* drugs for increasing the breast milk.[89] Classics also pointed at *Madhura*, *Kashaya anurasa*, *Sheeta* and *Laghu guna* of breast milk.[88] As *Kapha Dosha* is the key factor for the increase in breast milk, explication of the *Kapha* increasing factors/pharmacological principles *viz*. Rasa(Taste), Guna (Bio-physical property), *Virya* (Active principle/potency), and *Vipaka* (Product of bio transformation/Drug-Receptor complex) of Medicinal plants indicated for galactogogue action which could be accommodating in the study of mode of action of these drugs. A solicitous interpretation is that various attributes dominating the pharmcodynamic profile viz. *Snigdha* and *Guru Guna*, *Sheeta Virya* and *Madhura rasa* and *Vipaka* are the factors ascribed with *Kaphavardhaka action* (increases kapha dosha).[90] (**Table -7**). Ayurveda principles indicate that the drugs possessing physical qualities and pharmacological attributes similar to body elements or tissues are responsible for growth, development or augmentation of respective components of the body (*sarvada sarva bhavanam samanyamvriddhi karanam, Samanyam ekatvakaram, tulyarthata samanyam*).[91] The 32 plant drugs possess physical qualities and pharmacological attributes analogous to that of breast milk. The only exception here is the presence of *laghu guna* in 15 drugs though not responsible for increasing *kapha dosha*-the prime factor ascribed for galactogogue effect, which may be justified by the existence of *laghu guna* as one of the inherent qualities of breast milk.

AYURVEDIC TERMINOLOGY FOR GALACTOGOGUE ACTION

An observation on distribution of Ayurvedic terminology cited for galactogogue actions among 32 plants mentioned in Ayurveda revealed that the words -*Stanyajanana* has been

ascribed for two plants, both *Stanyajanana* and *Kseerjanana* for 8 plants, *Stanyakara* for 14 plants, both *Stanyakara* and *Ksheerajanana* for 1 plant, *Kseerjanana* for 7 plants. (Table-8)

Table-8: Distribution of Terminology cited for Galactogogue drugs

S. No.	Terminology for Galactogogue actions in Ayurvedic Texts	Distribution among number of plants
1.	*Kseerjanana*	15
2.	*Stanyakara*	15
3.	*Stanyajanan*	10

SECONDARY METABOLITES FROM PLANTS AS SOURCES FOR AUGMENTATION OF BREAST MILK

Certain secondary metabolites reported to be responsible for the augmentation of milk production in the veterinary and human contexts. Some of the important secondary metabolites are phenolic in nature however others *viz*. alkaloids, glycosides also play an important role in the enhancement of secretion of milk as well as improvement of the quality of milk focused on their nutritive values. Some of the major secondary metabolites plays a crucial role for their galactogouge effects such as some alkaloids facilitate letting down of milk, some isoflavones and polyphenols enhance milk yield, concentration, fat, protein and lactose percentage of milk, and ovulation rate, prevent bloat in cattle, reduce gastrointestinal nematode numbers and fly strike.[92-101]

CONCLUSION

In the emerging scenario the health policies in India and across the globe have been emphasizing on reproductive and child healthcare and also exploring the feasibility of introducing traditional systems of medicine such as Ayurveda, integrating with conventional medicine to achieve better healthcare. Further integration of Ayurveda and other Traditional system of medicine possibly offer safe and effective management of child health. Owing to the importance of breast milk and breast feeding as recognized by Ayurveda thousands of years ago and also endorsed by modern science, need is felt to promote these practices which are pivotal for physical, psychological and emotional development of child besides considerable immunological support. The potential leads form Ayurveda texts may be taken forward for further development of safe and effective and user friendly dosage forms through systematic pre-clinical and clinical studies.

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